Math Virtual Learning

Pre-Algebra
Volume of Pyramids and Cylinders

May 13, 2020

Pre-Algebra/Volume of Pyramids and Cylinders
Lesson: May 13, 2020
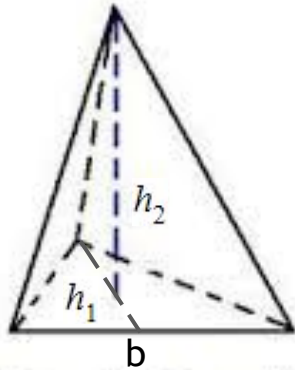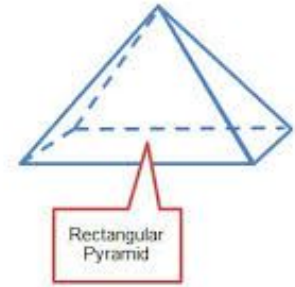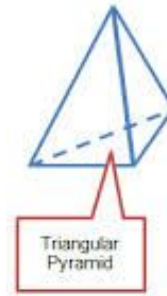
Objective/Learning Target:
Find the volume of pyramids and cylinders.

Let's Get Started:
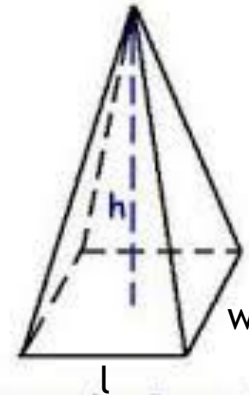Watch Video: Volume of Pyramids

Volume of Pyramid

$$V = \frac{1}{3}Bh$$

where $B =$ area of base

Triangular Pyramid

Square Pyramid

Rectangular Pyramid

$V = \frac{1}{3}Bh$

$V = \frac{1}{3}\left(\frac{1}{2}bh_1\right)h_2$

Triangular Pyramid

$V = \frac{1}{3}Bh$

$V = \frac{1}{3}lwh$

Rectangular Pyramid

Video

Video

Example 1

Volume of a pyramid $= \dfrac{1}{3} \times$ base area $\times$ vertical height

a

6 cm

4 cm

7 cm

Base area =   *answer*

:

Volume of a pyramid

=

=   *answer*

=

Example 1

Volume of a pyramid = $\frac{1}{3}$ x base area x vertical height

6 cm

4 cm

7 cm

Base area = 7cm x 4cm

= 28cm^2

Volume of a pyramid

= $\frac{1}{3}$x base area x vertical height

= $\frac{1}{3}$x 28 x 6

= 56cm^3

Example 2

Volume of a pyramid $= \frac{1}{3}$ x base area x vertical height
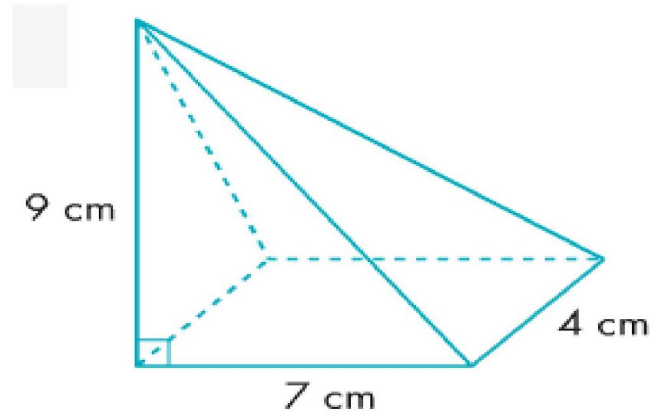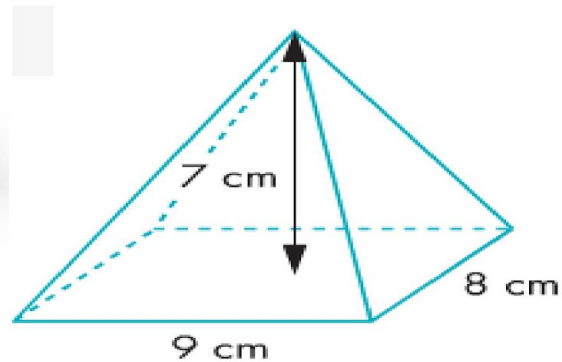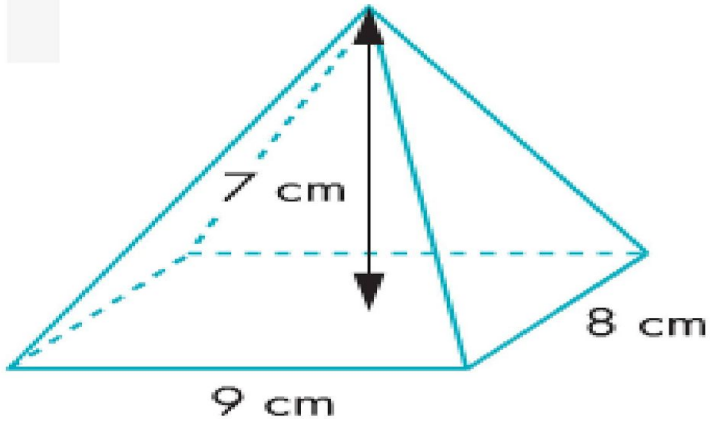
7 cm

8 cm

9 cm

9 cm

7 cm

4 cm

Base area =   9cm x 8cm
         = 72cm^2

$= \frac{1}{3}$x 72 x 7

= 168cm^3

Base area =   7cm x 4cm
         = 28cm^2

$= \frac{1}{3}$x 28 x 9

= 84cm^3

What is the volume of this triangular pyramid?

Triangle
base

Triangular pyramid

17 in

10 in

12 in

YOU CAN DO IT!

memegenerator.net

What is the volume of this triangular pyramid?

Triangle base

Triangular pyramid

17 in

10 in

12 in

DID YOU GET IT?

HUH, DID YOU?
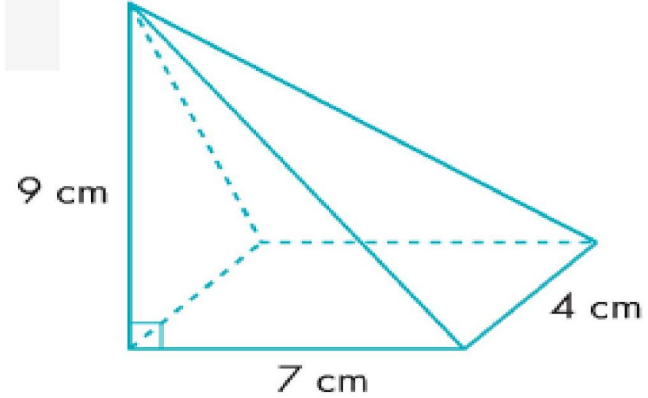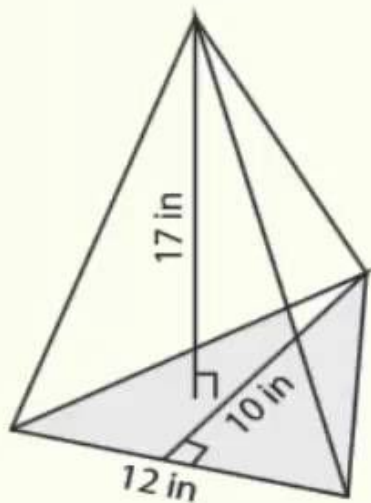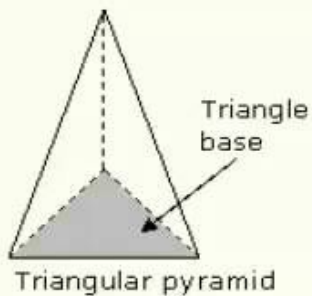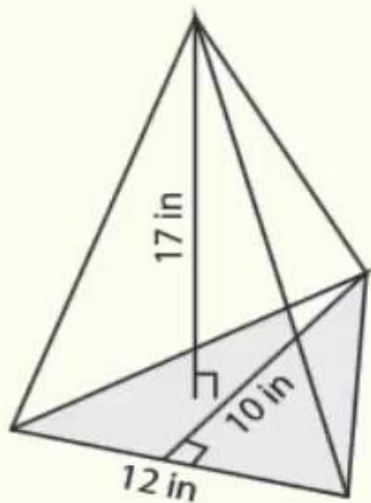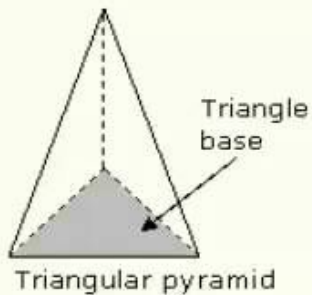
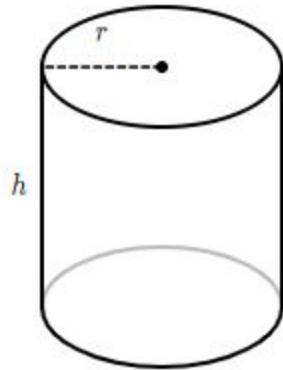ANSWER: 340 in.^{3}

If you struggled, watch this video.

Now we'll work on finding the volume of cylinders!

Let's Get Started:
Watch Video: Volume of Cylinders
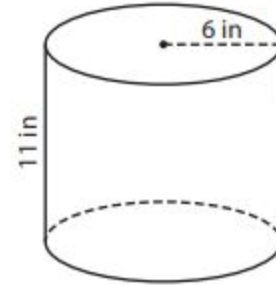
Practice:
Find the volume of the cylinder.

$$V = \pi r^2 h$$

$$V = Bh$$
V=(area of the base) x (height)
$$V = (\pi r^2) \cdot h$$

Volume = $\pi r^2 h$
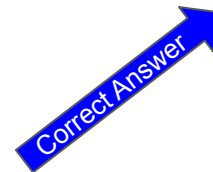Volume = $(3.14) 6^2 (11)$
Volume = $(3.14)36(11)$
Volume = 1243.44 in^3

Correct Answer

Practice:

Answer the questions on a piece of paper.
Find the volume of the cylinder.
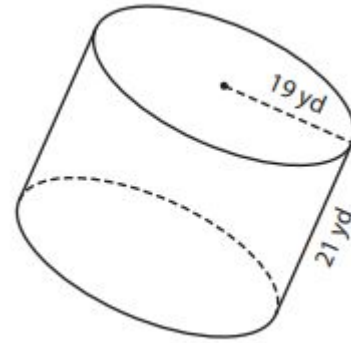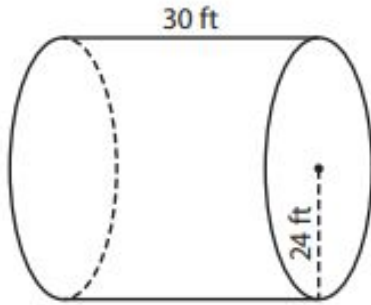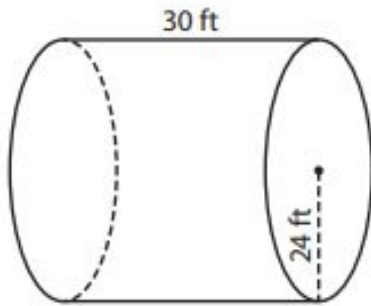
30 ft

24 ft

19 yd

21 yd

A cylindrical flower vase is 11 inches tall.
Find the volume of the vase, if the radius
is 4 inches.

10 ft

16.3 ft

Answer Key:

Once you have completed the problems, check your answers here.

30 ft

24 ft
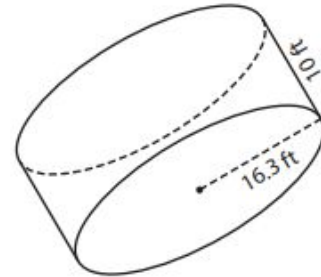
Volume = $\pi r^2 h$
Volume = (3.14) 24^2 (30)
Volume = (3.14)576(30)
Volume = 54,259.2 ft^3

19 yd
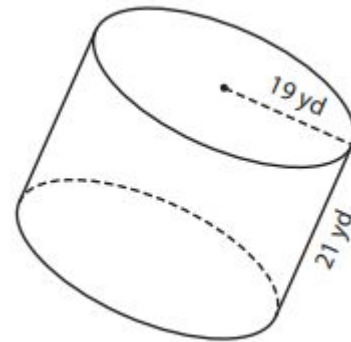
21 yd

Volume = $\pi r^2 h$
Volume = (3.14) 19^2 (21)
Volume = (3.14)361(21)
Volume = 23,804.34 yd^3

Answer Key:

Once you have completed the problems, check your answers here.

A cylindrical flower vase is 11 inches tall. Find the volume of the vase, if the radius is 4 inches.
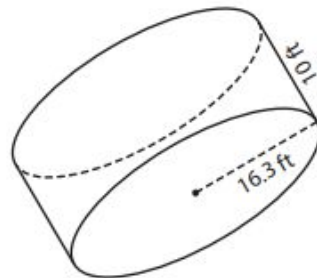
Volume = $\pi r^2 h$
Volume = $(3.14)\, 4^2\, (11)$
Volume = $(3.14)16(11)$
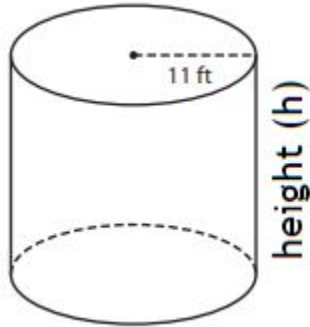Volume = $552.64\ in^3$

Volume = $\pi r^2 h$
Volume = $(3.14)\, 16.3^2\, (10)$
Volume = $(3.14)265.69(10)$
Volume = $8342.67\ ft^3$

Additional Practice: Challenge
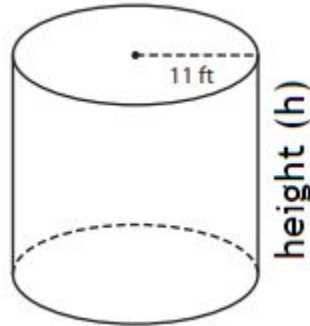Find the missing measurement for the cylinders.

Volume = 6838.92 ft^3

11 ft

height (h)

Volume = 197.82 in^3

7 in

diameter (d)
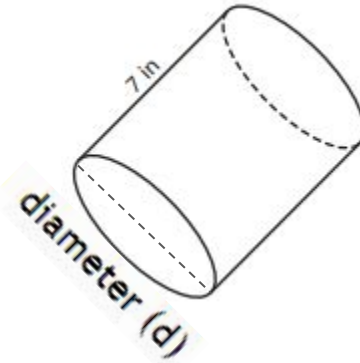
Additional Practice: Challenge Answers

Once you have completed the problems, check your answers here.

Volume = 6838.92 ft^3

11 ft

height (h)

Volume = $\pi r^2 h$

$6838.92 = (3.14)\,11^2\,(h)$

$6838.92 = (3.14)121(h)$

$6838.92 = 379.94(h)$

$6838.92 \div 379.94 = 379.94(h) \div 379.94$

$18 = h$

Volume = 197.82 in^3

7 in

diameter (d)

$d = 2r$

$d = 2(3)$

$d = 6$
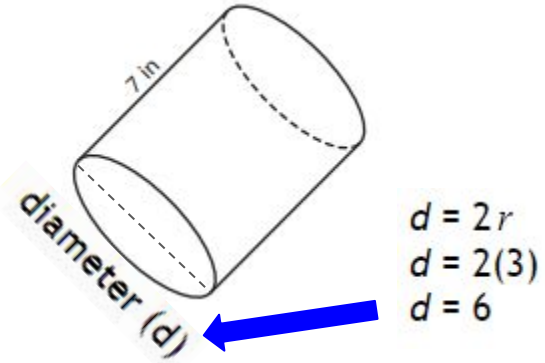
Volume = $\pi r^2 h$

$197.82 = (3.14)\,r^2\,(7)$

$197.82 = 21.98\,(r^2)$

$197.82 \div 21.98 = 21.98(r^2) \div 21.98$

$9 = r^2$

$\sqrt{9} = \sqrt{r^2}$

$3 = r$

Additional Practice: Cylinders

Click on the links below to get additional practice and to check your understanding!

r

h
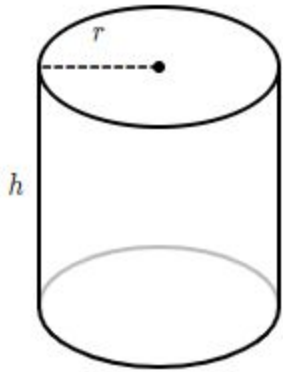
$V = \pi r^2 h$
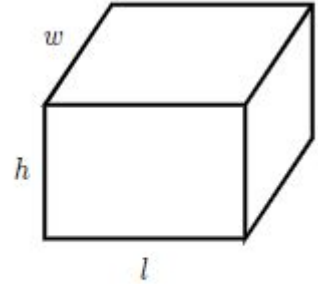
Khan Academy - Practice

Quizizz - Practice

Open Middle - Challenge

Math Games - Prisms and Cylinders

IXL - Prisms and Cylinders

w

h

l

$V = l \cdot w \cdot h$

Additional Practice: Pyramids
Click on the links below to get additional practice and to check your understanding!

Mathkite - Practice

IXL - Practice

Quizizz - Practice

Finding the volume of pyramids?
It's the right thing to do!